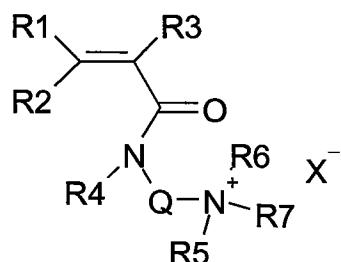


## **CLAIMS**

1/ An associative amphoteric polymer characterised in that it presents a molecular weight greater than 50,000 g/mol and in that it contains:

5 - at least one acrylamide-derived cationic monomer containing a hydrophobic chain and with the general formula:



where

10 R1, R2, R3, R4, R5, R6, independently, a hydrogen or an alkyl chain containing 1 to 4 carbons

Q: an alkyl chain containing 1 to 8 carbons

R7: an alkyl or arylalkyl chain containing 8 to 30 carbons, preferably 8 to 20 carbons

15 X: a halide selected from the group including bromide, chloride, iodide, fluoride and a counterion with a negative charge.

- between 1 and 99.9 mole % of at least one anionic monomer presenting acrylic, vinyl, maleic, fumaric or allyl functionalities and containing a carboxy, phosphonate or sulfonate group and/or their ammonium salts or alkaline-earth metal salts or alkali metal salts
- and between 1 and 99 mole % of at least one non-ionic hydrosoluble monomer.

20

2/ An associative amphoteric polymer as claimed in claim 1 characterised in that

25 the anionic monomer is selected from the group including acrylic acid, methacrylic acid, itaconic acid, crotonic acid, maleic acid, fumaric acid, 2-acrylamido-2-methylpropane sulfonic acid, vinylsulfonic acid, vinylphosphonic

acid, allylsulfonic acid, allylphosphonic acid and/or their water-soluble salts of an alkali metal, alkaline-earth metal and ammonium.

3/ An associative amphoteric polymer as claimed in either claim 1 or 2 characterised in that the non-ionic hydrosoluble monomer is selected from the 5 group including water-soluble vinyl monomers, which are advantageously selected from the group including acrylamide and methacrylamide, N-isopropylacrylamide, N-N-dimethylacrylamide and N-methylolacrylamide. N-vinylformamide, N-vinyl acetamide, N-vinylpyridine and/or N-vinylpyrrolidone can also be used.

10

4/ An associative amphoteric polymer as claimed in any of claims 1 to 3 characterised in that said polymer is branched and/or cross-linked using a branching and/or cross-linking agent.

15

5/ An associative amphoteric polymer as claimed in claim 4 characterised in that the branching and/or cross-linking agent is selected from the group including N-methylol acrylamide, methylene bis acrylamide, allyl ethers of sucrose, diacrylates, divinyls, diallylated compounds such as methyl triallyl ammonium chloride, triallylamine, tetraallyl ammonium chloride, tetra allyl oxyethane and 20 tetra allyl ethylene diamine.

6/ An associative amphoteric polymer as claimed in any of claims 1 to 5 characterised in that it comes in dry, powder or granulate form.

25

7/ An associative amphoteric polymer as claimed in any of claims 1 to 6 characterised in that it contains:

- between 0.005 and 10 mole % of a hydrophobic cationic monomer, preferably between 0.01 and 5 mole % and preferably between 0.02 and 2 mole %

- between 5 and 90 mole % of acrylic acid and/or methacrylic acid and/or 2-acrylamido-2-methylpropane sulfonic acid and their salts, preferably between 10 and 60 mole % preferably between 10 and 50 mole %
- and between 5 and 90 mole % of acrylamide and/or methacrylamide and/or N-isopropylacrylamide and/or N,N-dimethylacrylamide and/or N-vinylformamide and/or N-vinyl acetamide and/or N-vinylpyrrolidone, preferably between 35 and 90 mole % and preferably between 48 and 90 mole %.

5

10 8/ An associative amphoteric polymer as claimed in any of claims 1 to 7 characterised in that the acrylamide-derived hydrophobic cationic monomer is selected from the group including N-acrylamidopropyl-N,N-dimethyl-N-dodecyl ammonium chloride, N-methacrylamidopropyl-N,N-dimethyl-N-dodecyl ammonium chloride, N-acrylamidopropyl-N,N-dimethyl-N-dodecyl ammonium bromide, N-methacrylamidopropyl-N,N-dimethyl-N-dodecyl ammonium bromide, N-acrylamidopropyl-N,N-dimethyl-N-octadecyl ammonium chloride, N-methacrylamidopropyl-N,N-dimethyl-N-octadecyl ammonium chloride, N-acrylamidopropyl-N,N-dimethyl-N-octadecyl ammonium bromide and N-methacrylamidopropyl-N,N-dimethyl-N-octadecyl ammonium bromide.

15

20 9/ An associative amphoteric polymer as claimed in any of claims 1 to 8 characterised in that it also contains at least one other monomer, whether ionic or not, hydrosoluble or not, accounting for less than 20 mole % and selected from the group including monomers such as dialkylaminoalkyl (meth)acrylate, dialkylaminoalkyl (meth)acrylamide, diallylamine, methyldiallylamine and their quaternary ammonium salts or acid salts, etc., acrylamide derivatives such as N-alkylacrylamides, notably N-tert-butylacrylamide, octylacrylamide as well as N,N-dialkylacrylamides notably N,N-dihexylacrylamide, etc., derivatives of acrylic acid such as hydroxyalkyl acrylates and methacrylates, allyl derivatives, styrene and acrylate esters containing ethoxylated chains or not terminating with an alkyl or arylalkyl chain.

25

30

10/ An associative amphoteric polymer as claimed in any of claims 1 to 9 characterised in that it has a molecular weight greater than 100,000 g/mol and preferably greater than 200,000 g/mol.

5 11/ An aqueous composition containing as a thickening agent at least one polymer as claimed in any of claims 1 to 10.

12/ Use of associative polymers as claimed in any of claims 1 to 10, branched and/or cross-linked or not, as well as the gels containing them in the oil, paper, 10 water treatment, mining, cosmetics, textile or detergence industries.

15

20